

METHOD FOR VARYING THE MELTING POINTS
AND MOLECULAR WEIGHTS OF POLYOLEFINS USING
METALLOCENE CATALYST SYSTEMS

ABSTRACT

5 The present invention provides a method for
varying the melting points and molecular weights of
polyolefins by changing the structure of the catalyst
used in the polymerization. The catalysts that are
useful in the present invention are chiral,
stereorigid metallocene catalyst of the formula
 $R''(C_5R'_m)_2MeQ$. The catalysts include a bridge
structure between the $(C_5R'_m)$ groups and may contain
10 substituents on the groups. It has been discovered
that the melting points and molecular weights of the
polymers produced by such catalysts are influenced by
the bridge and substituents added to the $(C_5R'_m)$
groups. Thus, the present invention provides a
15 method for varying the melting points of the polymer
product and a method of varying the molecular weights
of the product by changing the components and
structure of the metallocene catalysts. The present
invention also provides a process for polymerizing
20 olefins in which the melting points and/or molecular
weights of the product may be controlled. Also
included in the invention is the discovery that the
melting points of the products are controlled by the
number of inversions in the xylene insoluble fraction
25 of the polymer.